

REMARKS

Claims 1-4 and 6-12 are pending in this application with claim 11 being withdrawn from consideration. Claims 1, 2, 4, 6 and 7 have been amended and claim 12 has been added. Support for the amendment to claim 1 can be found at, for example, page 11, lines 6-8. Support for new claim 12 can be found at, for example, pg 14, line 14 to pg 15, line 4 and Fig. 3. Claims 2, 4, 6 and 7 have been amended for clarity. No new matter is added. Reconsideration and prompt allowance of the application in view of the above amendments and following remarks is respectfully requested.

I. Rejection Under §112, Second Paragraph

The Office Action rejects claims 1-4 and 6-10 under 35 U.S.C. §112, second paragraph. Claim 1 has been amended in view of this rejection. Accordingly, Applicants respectfully request withdrawal of the rejection.

II. Rejection Under §103(a)

A. Rejection Over Kimioki And Isom

The Office Action rejects claims 1-4 and 6-8 under 35 U.S.C. §103(a) as being obvious over JP 2003-059519 to Kimioki et al. (hereinafter "Kimioki") in view of U.S. Patent Application Publication No. 2004/0038091 to Isom et al. (hereinafter "Isom"). The rejection is respectfully traversed.

Kimioki fails to teach or render obvious "the reformer control unit configured to support a second catalyst thereon," as recited in claim 1. The Office Action concedes that Kimioki fails to teach a reformer. However, the Office Action asserts that Isom cures the deficiencies of Kimioki.

Isom fails to teach or render obvious "the reformer control unit configured to support a second catalyst thereon," as recited in claim 1. Specifically, the Office Action asserts that Isom teaches that the fuel processing system (FPS 14) includes a reformer (including

autothermal reformer (32) and shift converter (34)) that converts the fuel feedstock, water (in the form of steam) and air to H₂ and CO and that this conversion to carbon monoxide is a partial oxidation reaction (paragraph [0021]). The Office Action continues by asserting that Isom teaches a controller (50) that controls the fuel feed flow to the reformer and thus, controls the operation of the reformer unit to cause a partial oxidation reaction of the selected material with supplied oxygen for production of hydrogen (paragraphs [0003] and [0021]). However, Isom the reformer (32) and/or shift converter (34) of Isom are not equivalent to the recited reformer control unit because Isom does not teach that either the reformer (32) or shift converter (34) supports a catalyst. Instead, Isom merely teaches that the autothermal reformer (ATR 32) is of a known design and operation and exothermically converts the fuel feedstock, water and air to H₂ and CO. Thus, Isom fails to teach or render obvious "the reformer control unit configured to support a second catalyst thereon," as recited in claim 1.

Applicants do not concede that Kimioki or Isom, alone or in combination, teach or render obvious the features recited in dependent claims 2-4 and 6-8. However, it is unnecessary to separately discuss the features recited in the dependent claims given the existence of clear and distinguishing features in independent claim 1.

Accordingly, Applicants respectfully request withdrawal of the rejection.

B. Rejection Over Kimioki, Isom And Ito

The Office Action rejects claims 9 and 10 under 35 U.S.C. §103(a) as being obvious over Kimioki in view of Isom, as applied to claim 1, and further in view of U.S. Patent Application Publication No. 2003/0061937 to Ito et al. (hereinafter "Ito"). The rejection is respectfully traversed.

This rejection is based on the assertion that the combination of Kimioki and Isom teaches or renders obvious all the features of claim 1, from which claims 9 and 10 depend.

As discussed above, the combination of Kimioki and Isom does not teach or render obvious all the features of claim 1.

Ito fails to make up for the deficiencies of Kimioki and Isom. Specifically, Ito fails to teach or render obvious "the reformer control unit configured to support a second catalyst thereon," as recited in claim 1. Ito merely teaches a hydrogen-permeable membrane (234) having a five-layer structure. Ito fails to disclose a reformer control unit, as recited in claim 1. Thus, Ito fails to teach or render obvious "the reformer control unit configured to support a second catalyst thereon," as recited in claim 1.

Thus, the deficiencies of the combination of Kimioki and Isom are not cured by the addition of Ito, and the rejection of independent claim 1 should be withdrawn. Claims 9 and 10 are patentable at least in view of the patentability of claim 1, as well as for the additional features recited therein.

Accordingly, Applicants respectfully request withdrawal of the rejection.

III. New Claim

With respect to new claim 12, Applicants do not concede that Kimioki, Isom and Ito teach or render obvious the features recited in new dependent claim 12. Specifically, the applied references fail to teach or render obvious "a vanadium layer; a proton conductor middle layer on either side of the vanadium base layer; and a palladium coat on an opposite side of either proton conductor middle layer from the side of the proton conductor middle layer contacting the vanadium base layer," as recited in new claim 12. Particularly, Ito teaches a hydrogen-permeable membrane (234) having a base layer (V), metal middle layers (Ni or Co) and metal coating layers (Pd) (paragraphs [0044] to [0045] and Fig. 3). The middle layers of Ito (i.e., Ni or Co) are thus different from the recited middle layers (i.e., proton conductor). Thus, Claim 12 is patentable at least in view of the patentability of claim 1, as well as for the additional features recited therein.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Request for Continued Examination

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